



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,089	12/20/2001	Sami Haapoja	413-010748-US(PAR)	9692
2512	7590	12/30/2005	EXAMINER	
PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824			LE, NHAN T	
			ART UNIT	PAPER NUMBER
			2685	

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/027,089 ✓	Applicant(s) HAAPOJA, SAMI	
	Examiner Nhan T. Le	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3, 4, 10, 11, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Smith (US 6,724,278).

As to claims 1, 13, Tarusawa teaches an arrangement for reducing transmitting end losses in a radio apparatus which comprises a receiver and at least one transmitter which, when the apparatus is being used, are occasionally simultaneously in signal transfer state, the arrangement comprising a radio-frequency power amplifier (see fig. 1, Ta, col. 4, lines 34-57), a transmitting end filter (see fig. 1, BF2, col. 4, lines 34-57) and an antenna (see fig. 1, A1, col. 4, lines 34-57), the arrangement further comprising at the transmitting end at least a second antenna filter the stop-band attenuation of which in the operating band of the receiver differs substantially from that of the first antenna filter in the operating band of the receiver (see fig. 1B, BF3, col. 4, line 58- col.5, line 28), and the arrangement further comprises switches to form the transmitting end filter of the antenna filters (see fig. 1, SW2, SW4, col. 4, lines 34-57). Tarusawa fails to teach wherein the transmitting end filters comprises at least two antenna filters wholly separated from the receiver. Smith teaches wherein the transmitting end filters

Art Unit: 2685

comprises at least two antenna filters wholly separated from the receiver (see fig. 3, numbers 72a, 74a, 76a, col. 2, lines 66-67, col. 3, lines 1-57). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Smith into the system of Tarusawa in order to filter signals with different frequency characteristics.

As to claim 3, Tarusawa teaches the switches being arranged to form the transmitting end filter using that one of first and second antenna filters which has a lower stop-band attenuation (in this case, switch SW4 connects points point C and B so that the filter BF2 using a lower stop-band attenuation (in fig. 1B) is used), when the receiver is in passive state (in this case, switch W3 connects to points C and B).

As to claim 4, Tarusawa further teaches an arrangement according to claim 1, the switches being arranged to include in the transmitting-end filter that one of first and second antenna filters which has a higher stop-band attenuation (in this case, switch SW4 connects points point C and A so that the filter BF3 using a higher stop-band attenuation (in fig. 1B) is used, when the receiver is in receive state (in this case, switch SW3 connects to points C and A).

As to claim 10, Tarusawa teaches the transmitter and the receiver being a transmitter and a receiver in one and the same radio system (see col. 1, lines 5-49).

As to claim 11, Tarusawa teaches the radio apparatus being arranged to operate in a first system and in a second system, which both use a same frequency band non-simultaneously, and the power amplifier is common to the transmitters conform to the both systems and the receiver is a receiver conform to the first system, the antenna end

of which receiver is shared with the receiver conform to the second system (see col. 4, line 34- col. 5, line 28).

2. Claims 5, 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Smith (US 6,724,278) further in view of Ishizuka et al (US 5,276,914).

As to claim 5, the combination of Tarusawa and Smith fails to teach the antenna filter of the antenna filters which has a lower stop-band attenuation being a low-pass-type filter and the one with a higher stop-band attenuation being a band-pass filter. Ishizuka teaches the antenna filter of the antenna filters which has a lower stop-band attenuation being a low-pass-type filter and the one with a higher stop-band attenuation being a band-pass filter (see fig. 2, numbers 4, 6, col. 5, line 8- col. 6, line 42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Ishizuka into the system of Tarusawa and Smith in order to filter signals with different frequency characteristics.

As to claim 6, the combination of Tarusawa, Smith and Ishizuka also teaches the transmitting end filter being the band-pass filter when the receiver is in receive state (see Ishizuka fig. 3, number 6, col. 6, line 43- col. 7, line 6).

As to claim 7, the combination of Tarusawa, Smith and Ishizuka also teaches the transmitting end filter being a series connection of the low-pass-type filter and the band-pass filter when the receiver is in receive state (see Ishizuka fig. 3, numbers 4, 6, col. 6, line 43- col. 7, line 6).

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Art Unit: 2685

Tarusawa et al (US 5,715,525) in view of Smith (US 6,724,278) in view of Wright (US 4,422,047).

As to claim 8, the combination of Tarusawa and Smith fails to teach an arrangement according to claim 1 at the transmitting end of the radio apparatus being in addition to the first and second antenna filters at least one band-pass filter, any one of which filters can be connected as the transmitting end filter by means of the switches. Wright teaches an arrangement according to claim 1 at the transmitting end of the radio apparatus being in addition to the first and second antenna filters at least one band-pass filter, any one of which filters can be connected as the transmitting end filter by means of the switches (see fig. 2, BF2, BF3,..BFn, col. 3, line 9- col. 4, line 16). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Wright into the system of Tarusawa and Smith in order to filter signals with different frequencies characteristics (as suggested by Wright, see col. 4, lines 1-2).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Smith (US 6,724,278) further in view of Parmentier (US 6,442,375).

As to claim 9, the combination of Tarusawa fails to teach the transmitter being one that operates at a frequency above 1.7 GHz and the receiver is a GPS receiver. Parmentier teaches transmitter being one that operates at a frequency above 1.7 GHz and the receiver is a GPS receiver (see col. 8, line 60 – col. 9, line 12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

Art Unit: 2685

made to provide the teaching of Parmentier into the system of Tarusawa and Smith so that the communication receiver can be located.

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Smith (US 6,724,278) further in view of Beming et al (US 6,628,942).

As to claim 12, the combination of Tarusawa and Smith teaches the first system and the second system. However, Tarusawa fails to teach an arrangement according to claim 11, the first system being WCDMA and the second system being GSM. Beming teaches the first system being WCDMA and the second system being GSM (see col. 9, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Beming into the system of Tarusawa and Smith in order to ensure high communication service in a frequently changing environment.

6. Claims 2, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tarusawa et al (US 5,715,525) in view of Smith (US 6,724,278) further in view of Hayes et al (US 6,662,028).

As to claim 2, the combination of Tarusawa and Smith fails the switches being MEMS switches. Hayes teaches switches being MEMS switches (see col.2, lines 30 – 52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hayes into the system of Tarusawa and Smith in order to connect electrical and mechanical components in communication system.

As to claim 14, Tarusawa teaches a mobile station comprising a receiver and at least one transmitter which, when the apparatus is being used, are occasionally simultaneously in signal transfer state, a radio frequency power amplifier (see fig. 1, Ta, col. 4, lines 34-57), a transmitting end filter (see fig. 1, BF2, col. 4, lines 34-57), and an antenna (see fig. 1, A1, col. 4, lines 34-57), the stop-band attenuation of one of the antenna filters which in the operating band of the receiver differing substantially from that of another antenna filter in the operating band of the receiver (see fig. 1, BF3, col. 4, line 58- col.5, line 28), and switches arranged to switch that one of the antenna filters which has the lowest stop-band attenuation as the transmitting end filter when the receiver is in passive state, and to switch that one of the antenna filters which has the higher stop-band attenuation as at least part of the transmitting end filter when the receiver is in receive state (see fig. 1, SW2, SW4, col. 4, lines 34-57), the transmitting end filter being separate from the receiver (see fig. 1, BPF2, col. 4, line 58 - col.5, line 28). Tarusawa fails to teach wherein the transmitting end filters comprises at least two antenna filters wholly separated from the receiver. Smith teaches wherein the transmitting end filters comprises at least two antenna filters wholly separated from the receiver (see fig. 3, numbers 72a, 74a, 76a, col. 2, lines 66-67, col. 3, lines 1-57). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Smith into the system of Tarusawa in order to filter signals with different frequency characteristics. The combination of Tarusawa and Smith fails to teach the switches being MEMS switches. Hayes teaches switches being MEMS switches (see col.2, lines 30 - 52). Therefore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hayes into the system of Tarusawa and Smith in order to connect electrical and mechanical components in communication system.

Response to Arguments

Applicant's arguments filed on 10/06/2005 have been fully considered but they are not persuasive.

Regarding claim 1, applicant argues that the teaching of Smith and Tarusawa fails to teach filtering signals with different frequency characteristics and arrangement for reducing losses at the transmitting end. The examiner disagrees. Smith teaches filtering signals with different frequency characteristics and arrangement for reducing losses at the transmitting end (see col. 1, lines 6-9, lines 18-20, lines 36-40, col. 3, lines 11-26, col. 3, lines 40-57). Applicant also argues that Tarusawa does not disclose a second antenna filter, the stop-band attenuation of which in the operating band of the receiver differs substantially from that of the first antenna filter in the operating band of the receiver; switches to form a transmitting end filter of the antenna filters. However, the examiner disagrees with applicant. Tarusawa discloses the above limitation i.e. BPF3 for TDD transmission and reception system in the range of 1.9 GHz is larger than BPF1 FDD reception system in the range of 0.8 GHz (see col. 4, lines 58-67, col. 5, lines 1-28). In addition, applicant argues that Tarusawa's receiver and transmitter are not occasionally simultaneously in signal transfer state. The examiner disagrees. "Occasionally simultaneously" as claimed does not require that "simultaneous" has to actually occurs. For the reason, the reference does not have to teach "simultaneously".

In addition, Tarusawa in fact teaches simultaneously in signal transfer stage (see col. 5, lines 29-38). Lastly, Tarusawa teaches the receiver and transmitter which are occasionally simultaneously in signal transfer state i.e. the switches 2, 4 are switched to the terminal B so that FDD signal can be sent and the switch 3 is switched to the terminal A so that the bandpass filter is connected to the reception amplifier RA (see col. 5, lines 29-67, col. 6, lines 1-8).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Le whose telephone number is 571-272-7892. The examiner can normally be reached on 08:00-05:00 (Mon-Fri).

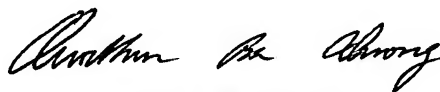
Art Unit: 2685

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N. Le

Nhan Le

 12/27/05
QUOCHIEN B. VUONG
PRIMARY EXAMINER